

Another snout beetle, *Hylobius pinicola* (Couper), was collected July 19, 1966, by A. H. Maxwell near the top of Mount Mitchell, North Carolina, at 6,600 feet, on Fraser Fir, *Abies Fraseri* (Pursh.). One other record (Warner 1966) was from "Black Mts." which would be in the same range as Mount Mitchell. According to the literature this is the southernmost record for this beetle in the United States.

REFERENCE

WARNER, R. E. 1966. Coleopterists' Bull. 20(3): 65-81.

Some New North American Collembola

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The following forms of springtails, which I here describe as new, have come to me from widely separated areas of the United States. The first form, *Deuterosminthurus yumanensis*, n. sp., occurs in a wide area from California to Indiana. Three forms belong to the Sminthuridae, viz.: *D. yumanensis*, *S. adamsi*, and *D. macomba*; the fourth, *Neanura palmeri*, belongs to the Poduridae. Appreciation is herewith expressed to the collectors who sent these specimens to me for study.

Deuterosminthurus yumanensis, new species (Fig. 1-A-G)

Length up to 0.75 mm. Two color forms are present. The dark form (Fig. 1-A) is heavily colored purple on dorso-posterior of body and has two dark lines on dorsum which run forward to head; with dark streaks from eyespots down and forward on cheeks. The light form has the color more or less in four longitudinal dark streaks on dorsum and sides of body (Fig. 1-B, C). Antennae with first two joints light yellowish and last two lightly colored bluish. Legs, furcula, and venter

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of body whitish in both color forms. With a transverse depression behind the middle of abdomen. Eyes 8 on each side and in dark eyespots. Antennae with 4 segments, last segment with 4 distinct subsegments besides basal and distal segment. A definite whorl of hairs on each subsegment. Proportions of antennal segments as 10:45:68:135. End bulb very evident on fourth segment (Fig. 1-D). Proportional length of head to antennae as 165:258. Unguis (Fig. 1-E) nearly straight basally and only slightly curved apically; with or without an evident inner tooth. Unguiculus small, spinulate, and having a terminal, knobbed bristle which extends only slightly beyond apex of unguis (Fig. 1-E). Two or three definite knobbed tenent hairs as shown in Fig. 1-E. Supra-anal segment of abdomen possesses 6 to 8 heavy, stout, curving hairs bent posteriorly over anal region. Anal appendage of female (Fig. 1-G) very evident, smooth, blade-like, and curved; no evident serrations or raggedness noted. Proportions of furcula as follows: manubrium 140, dens 100, mucro 40. Dens with 3 to 4 ventral, suppressed, long setae evident; with 8 long, outstanding, dorsal setae in a row, with basal seta being longer than others. Mucro spoon-shaped (Fig. 1-F) with no serrations or crenulations evident. With three bothriotrichia on side of abdomen in an oblique straight row (Fig. 1-C).

Type locality: Calexico, CALIFORNIA, July 16, 1958, specimens collected by E. I. Schlinger by means of a vacuum cleaner in alfalfa field. Other specimens were examined from Stillwater, Oklahoma, collected July 22, 1963, on *Cynodon* by R. M. Ahring. Some specimens also came from Indiana.

The co-types of this species and the following described new species are deposited in the N. C. Insect Survey Collection, Raleigh, N. C.

***Sminthurus adamsi*, new species (Fig. 1-H-K)**

Length up to 2.0 mm. Deep purplish-black [color] on dorsum of body as patterned in Figure 1-H. Most of purplish color on postero-dorsal surface with intermingled light spots and ob-

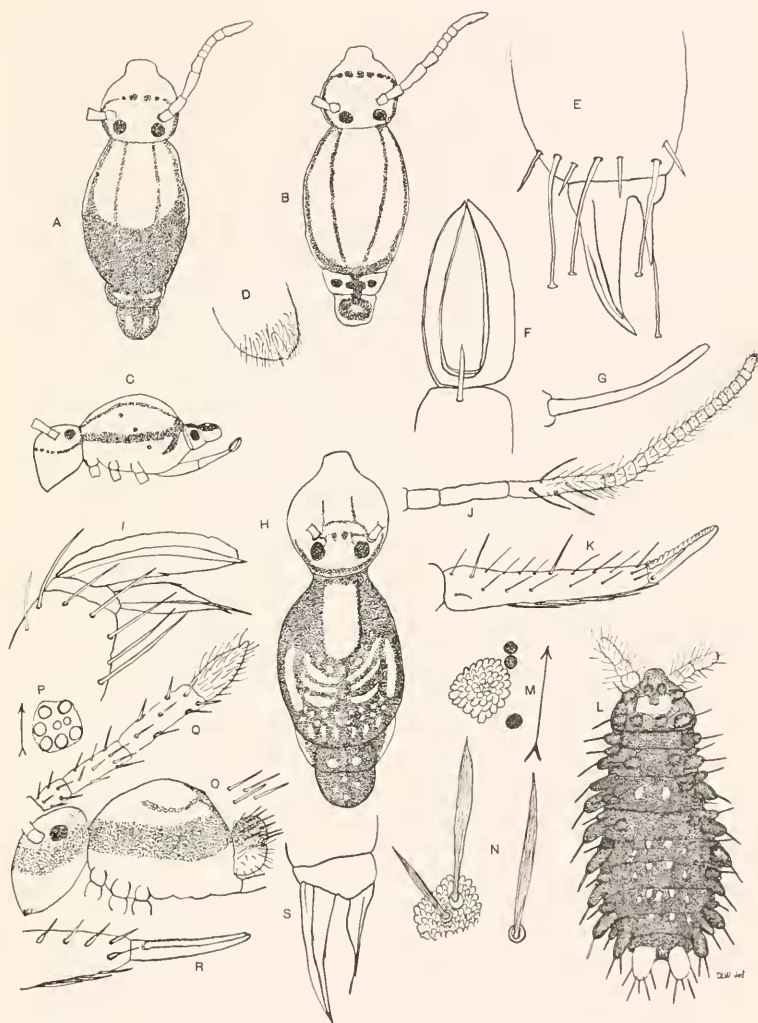


FIG. 1. *Deuterosminthurus yumanensis*, A-G: A—dorsal view of dark form, B—dorsal view of light form, C—lateral view color pattern of light form, D—fourth antennal bulb, E—unguis and unguiculus, F—mucro, G—female anal appendage; *Sminthurus adamsi*, H-K: H—dorsal color pattern, I—unguis and unguiculus, J—antennal segments, K—dens and mucro; *Neanura palmeri*, L-N: L—dorsal color pattern, M—eyes and ocular tubercle, N—forms of tubercle hairs; *Dicyrtoma macomba*, O-S: O—lateral color pattern, P—eyes, Q—antennal segments, R—mucro, S—unguis and unguiculus.

long streaks. Head [colored] purplish on under surface and only some dark spots and streaks in area of insertion of antennae. Venter of body, furcula, and tibia white. Other parts of legs just lightly pigmented. First 3 antennal segments unpigmented; fourth segment deep purplish-blue color. Ventral tube unpigmented, long and heavily tuberculate. Eyes 8 on each side in dark eyespots. Antennal segments in proportion as follows: 20:35:42:65; the fourth segment with 19 annulations. Unguis with well developed tunica which ends before tip of unguis; unguis only slightly curved, not very broad basally and with 1 tooth evident on inner margin (Fig. 1-I). Unguiculus broadly lanceolate ending spinnately and with a terminal spine which extends as far as the apex of unguis. Knobbed tenent hairs absent. Mucronal seta present. Outer edge of mucro serrate, bearing about 17-20 serrations; inner edge with about 6 to 8 slight crenulations. Mucro to dens as 1:3.5. Dens with 5 suppressed ventral setae; a row of 8 dorsal hairs, with two long and outstanding as compared to other hairs (Fig. 1-K).

Hairs on distal part of second antennal segment longest (Fig. 1-J); hairs present on third and fourth antennal segment as normal for this genus, fourth having about 1 whorl of hairs to each annulation. Posterior margin of head with 6 to 8 heavy, long hairs, four in a posterior row. With several heavy backward curving hairs on anal segment of body. Tibia with a row of heavy hairs on anterior surface.

Type locality: Mt. Mitchell State Park, North Carolina. Collected at 6,200 feet altitude, June 20, 1958, by D. A. Adams for whom this species is named.

***Neanura palmeri*, new species (Fig. 1-L-N)**

Length up to 3.5 mm. Dark purple color (Fig. 1, L) over entire body with the following exceptions:—the entire antennae are white, last two dorsal tubercles of anal segment are white; most of legs are white up to coxae, with only slight color streaks on upper femora; ventral tube is white; proboscis is white; venter only lightly colored.

Antennae are conical, shorter than head, and segments 3 and 4 are only faintly demarcated. Proportional lengths of antennal segments are 25:20:17:20, the first segment wider and longer than the others. Organ of third segment with 2 sense rods and 2 blunt hairs; fourth segment with 6 to 8 olfactory hairs and a 3-lobed knob at apex. Eyes 3 on each side, the anterior one directly anterior to the one next to tubercle and not touching tubercle (Fig. 1-M). Postantennal organ absent. Mouthparts for piercing and with buccal cone well developed. Segmental tubercles distinctly tuberculate, with arrangement and numbers as follows: head with 10, 4 in a posterior row, two dorsal ocular, two small tubercles on dorsum and just anterior to ocular, and with a small lateral tubercle on each side of head near posterior row; pronotum with 4, mesonotum to fourth abdominal segment with only 6 discernible tubercles each; fifth abdominal segment with only 4 tubercles, and sixth with 2 prominent tubercles (Fig. 1-L). The tubercles on the fourth, fifth, and sixth abdominal segments are the most prominent and developed. The dorsal tubercles are greatly reduced and none were discernible on dorsum from second abdominal segment posteriorly.

Unguis heavy, curved and untoothed. Unguiculus absent. Tenent hairs absent. Large hairs of the body long, pointed, and most somewhat striated and not serrate. The hairs of posterior are somewhat sword-shaped; some tubercles have 5 hairs and some with at least 2 emerging from dorsum of tubercles (Fig. 1-N). Most of lateral tubercles have at least one long pointed hair outstanding.

This species closely resembles *N. barberi*, but differs in the size and situation of tubercles on dorsum and sides of body, and in the number and position of eyes.

Type locality: taken in leaf mould at 6,200 feet altitude near the top of Mount Mitchell, N. C., July 1, 1959. Collections were made by D. L. Wray and W. M. Palmer for whom the species is named.

Dicyrtoma macomba, new species (Fig. 1-O-S)

Length up to 0.8 mm. Purplish pigmentation mostly over dorsal half of body and upper part of head. Heavy pigmentation along sides of body in wide bands and patches. Dorsum of abdomen lighter, except there is a Y-shaped design of purple on dorsum directed forward. Venter of body, legs, and furcula light (Fig. 1-O). Antennae purplish throughout. Head to length of antennae as 145:189. Proportions of antennal segments as 20:57:67:45; without subsegments, fourth segment with 7 to 8 definite whorls of hairs. Unguis long, narrow and ending rather sharply pointed; only faint dentation noted on inner margin, sometimes without teeth (Fig. 1-S). Unguiculus narrow, lamellate at base, and with a subapical bristle which reaches three-fourths length of unguis. No inner spine seen on basal lamella. Eyes 8 on each side in a dark eye patch (Fig. 1-P), with the 2 inner eyes much smaller than others. Dens to mucro as 5:15; with 3 ventral suppressed bristles on inner side and with 5 to 6 dorsal bristles and a longer basal bristle. Mucro long and narrow, ending bluntly with a divided apex, toothed on both margins, but teeth very minute and not serrate as most species of this genus.

With thick heavy bristles on anal segment (Fig. 1-O), and with somewhat similar but shorter bristles on postero-dorsum of head. Hairs of antennae as shown in Fig. 1-Q.

Type locality: MaComb, ILLINOIS, specimens collected from moss September 21, 1958, by R. A. Scott.
